MEMORANDUM FOR: ~~JOH~~ F.Y.I.

John:

The TSG test and evaluation people have rejected the prototype [redacted] 1540 light table. Attached are some of the specifics. We should hear from [redacted] in about a week or so their reaction.

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[redacted] tells me that this will not slow up production of tables, although they are quite anxious for the corrections to be made so that we will not have a number of them delivered that contain these deficiencies. TSG will keep us posted on how this goes.

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Al (4 Jan 70)
(DATE)

FORM NO. 101 REPLACES FORM 10-101
1 AUG 54 WHICH MAY BE USED. (47)

R+D 1

SPEED LETTER

REPLY REQUESTED: [ ] YES [ ] NO

DATE: 31 December 1970

LETTER NO.:

TO : SC&PB

ATTN: [redacted]

FROM: Engineering Support Division

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1. The Preproduction Model, Split Format Light Table [redacted] 15 Model MLT/1540) Serial No. 001 submitted under the terms of [redacted] is hereby rejected.

2. Attachment 1 is a list of defects found in the course of testing Serial No. 001.

3. Certain unsatisfactory Quality Control conditions were found during initial inspection of fourteen production tables. These conditions are listed in Attachment 2.

4. It is requested that the Contractor provide the Contracting Officer with his course of action concerning correction of the defects and Quality Control conditions listed on the attachments.

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[redacted]

Deputy Chief
Engineering Support Division, TSG, NPIC

SIGNATURE

REPLY

DATE

SIGNATURE

FORM 5-67 1831 USE PREVIOUS EDITIONS

Defects	Contract References
1. The table tilts by lifting the back of the unit and hinging on the front. This creates a nutcracker effect at the hinge. The tilt switch is located very close to the hinge, and it has been determined that an operator could very easily suffer crushed fingers while operating the switch.	Para. 3.6.5 (4) - Moving parts such as ventilating fans, drive belts, or gears, shall be shielded or enclosed to prevent inadvertent access by the operator.
2. The Y motion is locked when the table is tilted. This system is actuated by a mercury switch. The adjustment required to provide this locking feature just after tilting starts, and to release the lock after it becomes horizontal, is quite touchy. The prototype table is just as likely to be locked in the horizontal position as unlocked. If this is relieved, the carriage may start to roll forward when tilting occurs before locking takes place.	Para. 3.5.1.4.2 - A manual bridge furnished with a tilting stand shall be provided with an optional fail-safe override to prevent uncontrolled motion in the Y direction when the table is tilted. To move the carriage in the Y direction with the horizontal, it shall be necessary only to release the Y friction lock. In a tilted position, a fail-safe interlock shall be activated preventing Y translation unless the interlock is purposely defeated.
3. Using a gauge configured to show the maximum overall width of a 6.6" film reel, it was found that interferences exist at all reel stations. Further checks on the production models available at that time showed that 23 of 24 stations checked are too narrow and will not accept the 6.822 inch dimension specified.	Para. 2 - The table shall accommodate spools ranging up to and including the size of spool specified in Military Standard MS26565-22 loaded to capacity with film.
4. The cable which connects the focus mechanism to the power supply and electronics at the back of the table prevents the focus mechanism from realizing full travel to the back of the viewing surface.	Para. 3.4.1.2 - With any of the microstereoscopes fixed in the mount, and using the center of the scope as a reference, translation in the Y direction shall be adequate to cover the full 15" depth of the glass viewing surface.
5. Markers are provided on the table to aid in placing the motors and idlers for various film configurations. The motors have matching markers on one side. However, the motors must be used in such a way that the side not containing the marker is in view. Consequently, markers must be placed on both sides.	Para. 3.3.1.2 - A visual reference scale and indexing device with positive detents shall be provided to allow accurate positioning of the brackets to hold the various width spools and assure accurate tracking across the glass viewing surfaces of the film parallel to the longitudinal axis of the light table and to each other.
6. The MLT is made in two parts, an elevating stand and the light table proper. If the light table is not put on the stand at the right place, or if it shifts while being transported, the lower	Para. 2 - Provision shall be made for viewing... in-line viewing of two of the same widths, of 70mm, 5", 6.6", or 9.5" wide film.

cover is prevented from dropping by the tilt and elevating switch housing. The lower cover will not open when the table is tilted.

7. The mechanism which takes up the dead loop at the center of the table employs cable guides which hold the actuating mechanism in its track. These cable guides have profiles which prevent the looping mechanism from reversing direction at one point in its travel.

8. The lower cover latches are very difficult to operate, due to their placement and design.

9. The illumination sources are not equal within 100 fL at maximum. The left measured 3225 fL max and the right 3010 fL max.

The change in output of one side when the other is turned completely down or up should not exceed 100 fL. This change was measured to be 150 fL on the left side and 165 fL on the right side.

10. The screws holding the pod in the optics mount do not provide adequate force to prevent unwanted motion.

11. There have been instances of evidence of poor quality control. a) The bearing track on the left side was not fastened tightly. b) The plastic protector covers on the Y chain drives dragged the chain and drive elements. c) The power cord reel fell off of the unit. d) The tilt lock mercury switch was not set properly.

Para. 2 - The table shall include a simple film looping mechanism which shall allow forming a loop of film below the table in order that separated frames, on the same roll of film, may be arranged adjacent to each other for convenient stereo viewing. Looping of parallel rolls of film is required. This mechanism shall be capable of forming a continuous film loop from 0 to 76 inch

Para 3.2.1.4 - All controls, including the film hand wheels (on the manual version), shall be positioned so they can be easily manipulated. In this respect, it is understood that the location of the controls, as supplied on the preproduction model (when accepted), will be satisfactory.

Para. 3.1.1.1 - The maximum levels of the two illumination sources shall not differ by more than 100 foot lamberts at the time of this measurement. With one of the two sources set at maximum or minimum illumination level, there shall not be a change of more than 100 foot lamberts in illumination level of that source when the illumination level of the other source is adjusted throughout its full range.

Para 3.5.1 - Mounting devices shall be sufficiently rigid to preclude instrument misalignment and loss of collimation of the optics with respect to the viewing surface during normal handling and operation.

Contract, Page 3, ACCEPTANCE - Final inspection and acceptance of articles shall be by demonstration of successful performance and completion of tests set forth in a mutually approved Acceptance Test Plan (ATP), which shall be provided for approval two (2) weeks prior to commencement of tests on the units of any item.

Para. 11 (continued)

12. The color rendering index (CRI), correlated color temperature (CCT), and chromaticity aim points (X, Y) were measured for each side and are listed below.

	Left Side		Right Side	
	Test 1	Test 2	Test 1	Test 2
CCT	5574	5689	5565	5706
CRI	57.69	55.28	57.53	55.93
X	0.3304	0.3278	0.3311	0.3275
Y	0.3626	0.3616	0.3659	0.3614

Contract, Page 4, WARRANTY OF SUPPLIES - All supplies furnished under this Contract will be free from defects in material or workmanship and will conform with the specifications and all other requirements of this Contract.

Para. 3.1.1.2

CCT	5000±500K
CRI	$\geq$ 70
X	0.345
Y	0.358

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TEST & EVALUATION BRANCH, ESD, TSG

31 DEC 1970

Attachment 2

Non-Acceptable Q.C. Conditions found on 1st Inspection of 14 Production Tables

1. Motor and Idler Tight on Rails
   S/N 002, 003, 004, 005, 006, 017, 022, 015, 026

2. Loop Take-up Slipping
   S/N 004, 026, 023, 017

3. Parallelism
   S/N 002, 003, 004, 005, 006 (not checked on others)

4. Collimation
   S/N 002, 003, 004, 005, 006 (not checked on others)

5. Covers Interferring with X&Y Travel
   S/N 003, 004, 023, 016, 015, 022, 024

6. Spool Release on Motor Sticking
   S/N 003

7. X&Y Drive Creep in Off Position
   S/N 005, 006, 022, 004

8. Carriage Exceeds 4 lb Spec
   S/N 003, 004, 023, 016, 015, 022

9. Film Jerky in Slow Speed
   S/N 006, 023, 016, 015, 022, 017, 024, 014, 009

10. Lamps not Working (flicker and tubes not coming on)
    S/N 006, 004, 026, 023, 015, 022, 017, 014

11. Glass Top Scratched
    S/N 026, 017, 024

12. Dimmer Switch Rough
    S/N 006, 003

13. Pod Ring Too Tight
    S/N 002, 003, 004, 005, 006, 016

14. No Light Control
    S/N 026, 007

15. Front Top Trim Rough
    S/N 011, 026, 024, 016

[redacted]

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EQUIPMENT PERFORMANCE BRANCH, ESD, TSG